DOCUMENT RESUME

ED 286 666 RC 016 375

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TITLE Preparing Change Agents for Change Agent Roles.
PUB DATE Apr 87
NOTE 12p.; Paper presented at the Annual Meeting of the Association for International Agricultural Education (3rd, Chevy Chase, MD, April 24-26, 1987).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Change Agents; *Developing Nations; *Extension Agents; Foreign Countries; *Job Training; *Outcomes of Education; Professional Training; *Role Perception; Rural Development; Technical Assistance; Technology Transfer
IDENTIFIERS Central America; South America

ABSTRACT

Seventy-seven Spanish- and Portuguese-speaking agricultural change agents from developing Central and South American countries responded to a questionnaire which sought perceptions of the roles in which the change agents felt they were involved and the roles for which they felt they were being trained. The agents were participating in training programs sponsored by the Centro Internacional de Agricultura Tropical (CIAT) from August through December 1986. The roles delimited by the study were administrator, consultant, educator, facilitator, organizer, and researcher. The participants were recently trained (41.5% within the past 5 years), relatively new to their jobs (59.7% with 5 years or less experience), male (93%), and held a university degree (88.3%). The questionnaire presented many dilemmas for the respondents. It appeared to cause them to think about aspects of their job in ways they previously had not done, and it caused them to think about the training they had received, and its relationship to their work. It seemed that they could easily identify with roles such as educator, researcher, and consultant, but other questions pertaining to roles such as broker, enabler, etc. seemed to give them trouble. Some of these ideas were perceived as being too abstract. This has possible implications for determining whether these roles are an important part of their job, and whether there should be training to better develop these skills. Also, the overall effect of these findings supports the notion that change agents in the setting examined are not aware of some of the change agent, or "group process," aspects of their job and have not received training for them. Therefore, it is concluded that further investigation needs to be undertaken to examine persons trained for their change agent roles, and their job effectiveness, versus persons not receiving this specific training. (NEC)

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RC016375

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PREPARING CHANGE AGENTS FOR CHANGE AGENT ROLES

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INTRODUCTION

The increase of production and efficiency of production is a major goal of agricultural production systems both in the developed world as well as in the developing world. Effects of increased production are particularly felt in the developing world.

Three major players are active in gaining increases in production and efficiency. These are the farmer, the researcher, and the agricultural change agent. In many cases this change agent is referred to as the agricultural extensionist. It is generally the responsibility of the agricultural change agent to transfer technology from the research institutions to the farmer. It is also equally important for the change agent to take information and feedback from the farmer to the researcher. Stavis (1979) has suggested that the link between small farmers and extension has always been weak. He goes on to suggest that this linkage should be facilitated by the extension worker, but this has not always been the case. Gilbert (1980) suggested two possible reasons for this:

1. Institutional and administrative barriers which prevent effective interaction between researchers, extension workers, and farmers.
2. Researchers in the Third World often have higher academic qualifications than extension staff, thereby reinforcing a tendency towards top-down prescriptions-from research workers to farmers. (p. 2-3)

This study looks at this middle linkage, the agricultural change agent, and the training that he or she receives. The idea of sound training for agricultural extensionists is nothing new. But, in many cases the training that these individuals receive deals primarily with agricultural technology--agronomy, animal husbandry, farm management, etc. This type of training is important, and deserves considerable attention. But, what about the other aspects of the extensionist's job, the change agent role? Shouldn't the extensionist also receive adequate training for that aspect of the job?

In pointing out the important aspects of an effective training program, Martinez (1982) states "They must also have a sound knowledge of human development and relations, program planning and implementation, the principles of testing and learning, the structure and dynamics of society, identification and diagnosis of problems, communication and strategies of change, and the techniques of evaluation." (p. 9) These roles sound very much like those of a change agent. But do extensionists receive training for their change agent roles? If they receive this training, is it useful? More importantly, do these roles match the roles that agricultural change agents perceive that they perform on their job?

The following questions are examined in this paper: (1) Do agricultural change agents perceive that they perform specific roles on their jobs? (2) Were they trained in these roles?

A null hypothesis tested was that there is not a relationship between roles in which change agents perceive being involved, and those for which they perceive being trained. Additionally, the full study looked at other questions in respect to the type of training received, the usefulness of the training, and when the training was received. But, this information will not be reported in this paper.

Delimitations

This study was delimited to a population of all Spanish and Portuguese speaking agricultural change agents involved with training programs sponsored by the Centro Internacional de Agricultura Tropical (CIAT) from August through December 1986, with usable responses being obtained from 77 individuals. The study was also delimited to the specific roles of change agent that are described by Beal (1981).

METHODOLOGY

Development of the Instrument

A questionnaire was developed, translated, field tested, and then administered to change agents attending training programs in South and Central America coordinated by Centro Internacional de Agricultura Tropical (CIAT).

But, on what basis can a questionnaire be developed to investigate the different aspects of being a change agent, and how can one determine if the change agent has received training for these different aspects? Rogers (1983) suggests that in assuming these duties change agents will find that they must assume many different roles. One aspect of the job may be to motivate people, and in another to find answers. Beyond that Rogers suggests that there is a sequence of events that will generally take place in bringing about acceptance of an innovation. In each of the steps change agents might find that they have one or more definable roles which they must assume.

There are many ways to delineate the roles of a change agent. Rogers has his taxonomy; O'Gorman (1978) suggested another. For this study six major roles as described by Beal (1981) were used. The Beal taxonomy was selected because it used a small number of roles in an agricultural context. Beal described these roles as:

1. Administrator--holds a formal position in organization, and well defined responsibilities.
2. Consultant--provides information as an expert in problem definition, diagnosis, locating available information, group process, goals and solutions, and establishing effective working relationships in the client system.
3. Educator--works with the client system in providing information, defining problems, and in considering

alternate solutions of the problems.

4. Facilitator--makes things easier. The facilitator may have four sub-roles. The "enabler" facilitates the group process. The "broker" is the go-between among individuals and groups. A role that has more direct involvement and a higher degree of risk is that of "arbitrator". A change agent assuming more active involvement than that of the broker role would be that of the "advocate".
5. Organizer--feels the need and takes charge of making things happen.
6. Researcher--works with the client system in providing information, defining problems, and in considering alternate solutions of the problems.

These roles served as a basis for the questionnaire. Several different activities were listed for each role. Related questions were asked about each activity in regard to the frequency with which each activity was performed, and whether or not the person had been trained for this activity. Certain demographic questions were asked, as well as questions related to other aspects of the study.

The focus of this study was on change agents in developing countries in Central and South America. CIAT provides training in four commodity areas, as well as seed production. This training is done at both the headquarters in Colombia, and in other countries, primarily in South and Central America. Many agricultural change agents participate in CIAT training programs, particularly through "in-country" training. Arrangements were made for the population and sample for the study to be trainees in CIAT programs from August-December 1986.

The questionnaire was developed and translated at CIAT while the investigator was serving an internship there. Statements and questions were first developed in English, and then given to a native English speaker and the investigator's graduate advisory committee for comment. Following this the questionnaire was translated to Spanish by a native Spanish speaker fluent in English. It was reviewed by other native Spanish speakers fluent in English, and found to be a literal translation, especially with terms not having an exact interpretation in Spanish. The questionnaire underwent further refinement. During this process a native English speaker, fluent in Spanish, made editorial corrections. At this point, copies of the questionnaire were printed and given to a training group at CIAT (native Spanish speakers) for field testing. Additional refinements were made to the instrument with the help of trainers involved in training programs.

A Portuguese version was also developed from the Spanish version. The Portuguese version was tested during a training program in Brazil. Very few corrections were noted by the trainer, who happened to be the same person involved with the English-Spanish version.

Analysis of the Data

Descriptive statistics (frequencies, percentages, and measures of central tendency) were used to organize and summarize data. Pearson correlations were used to determine the nature and strength of the relationships between the roles performed and the training received.

Reliability was also tested for each group of questions which contributed to each of the specific roles; reliability coefficients ranged from .558 to .902 for questions dealing with receiving training, and from .641 to .889 for questions dealing with the frequency of performing roles..

Limitations

Because the study used a sample of trainees involved with an international center who were primarily from Latin America, and the questionnaire was only translated to Spanish and Portuguese, the sample was not a random sample of persons working as change agents throughout the world. Therefore, the findings and conclusions cannot be generalized to any specific population or country because:

a. These trainees may be more highly educated, more highly motivated, and be higher in job status than other personnel from their home countries.
b. Persons involved in training at CIAT tended to be younger professionals, or newer on their jobs.
c. These trainees were involved in technical training of a specific nature and thus may only be active in the change agent process in a very narrow range of activities.
d. Conditions of the work environment, training, and other aspects of the change agent's job in Latin America may not be similar to those in other parts of the world.

Assumptions

The following assumptions were made in regard to the study:

a. Trainees interviewed were actively involved as change agents in their home countries.
b. The methods used to obtain the data solicited the true opinions of the respondents, and the researcher was able to interpret the responses accurately.
c. Trainees who were interviewed were familiar with the concepts and ideas involved in "change agentry".

RESULTS

The participants of this study could be generally described as; recently trained (within the past 5 years--41.5%), relatively new to their job (5 years or less--59.7%), and male (93%). Additionally, they would be considered educated with at least a university degree (88.3%). In some cases these figures may seem surprising. But, usually persons selected for CIAT training are young professionals in their governments' services.

The participants came from the following countries:

Brazil	17
Mexico	17
Peru	15
Costa Rica	12
Honduras	12
Colombia	1
Guatamala	1
Panama	1
Paraguay	1
TOTAL	77

After obtaining frequencies for each question, a combined score of all the statements was calculated, and then an average score for each role indicated by Beal was determined. The average score for the first question, "How often do you perform these roles on your actual job?" had a range from 1 (never) to 5 (very often). This average may be useful if looking solely at a ranking of relative frequency with which the change agents perceived themselves performing each role. These scores are shown in Table 1.

Table 1

Average Score for the Frequency With Which Change Agents Perceived Themselves Performing Different Roles in Their Jobs on a Scale of 1-5, CIAT, 1986 (N=77).

Role	Average Score*
Consultant	3.77
Enabler	3.70
Researcher	3.68
Broker	3.20
Educator	3.16
Administrator	2.97
Organizer	2.90
Arbitrator	2.65
Advocate	2.25

* 1=Never 2=Occasionally 3=Sometimes 4=Often Very Often

It should be noted that the three most frequently indicated roles were Consultant, Enabler, and Researcher. It might also be interesting to note that another important change agent role, Organizer, ranked near the bottom.

A second average score was determined for the question, "Have you ever received training for this role?". This answer was either "yes" (1), or "no" (2). These scores are shown in Table 2.

For each particular role two to four statements were developed that characterized that role. The scores for the statements were then combined to give a score for each role. The manner in which scores were developed for training perceived to have been received was to use the equation:

$$\text{Average Score} = \frac{\frac{\text{Sum of all scores for each role}}{\text{Total Number of Cases}}}{\text{Number of statements for a particular role}}$$

This procedure was followed in order to be able to determine whether or not a significant correlation existed between the training perceived as being received and the frequency with which the agents perceived themselves as performing these roles. Only cases where the respondent answered all the statements for the particular role were used.

Table 2

Average Score for the Extent to Which Change Agents Perceived Having Received Training in Specific Roles on a Score of 1 or 2, CIAT, 1986 (N=77).

Role	Average Score*
Researcher	1.48
Educator	1.57
Consultant	1.57
Enabler	1.64
Broker	1.69
Organizer	1.75
Administrator	1.77
Arbitrator	1.78
Advocate	1.86

*1 = yes 2 = no

Due to the fact that 29 statements were used to develop an overall score for 9 specific roles described by Beal, a test for reliability should give an indication of whether the questions are accurately measuring the intent of the questions in a consistent manner. Beal indicated that 4 sub-roles made up the role of "Facilitator". The overall reliability is also given. The different reliability coefficients are given in Tables 3 and 4.

The reliability coefficients for the frequency which roles were performed ranged from .641 to .889. The reliability coefficients for questions dealing with receiving training ranged from .558 to .902.

Table 3

Reliability Coefficients for Statements Contributing to the Frequency With Which Roles Were Performed By Change Agents, CIAT, 1986 (N=77).

Role	Reliability Coefficient (Alpha)	Number of Statements
Facilitator	.889	11
Broker	.883	3
Arbitrator	.870	2
Advocate	.837	2
Enabler	.696	4
Consultant	.865	4
Researcher	.772	4
Administrator	.713	3
Educator	.654	4
Organizer	.641	3

Figure 4

Reliability Coefficient for Questions Regarding Whether of Not Change Agents Received Training for These Roles by Change Agents, CIAT, 1986 (N=77).

Role	Reliability Coefficients (Alpha)	Number of Statements
Facilitator	.902	11
Broker	.812	3
Arbitrator	.705	2
Advocate	***	2
Enabler	.736	4
Researcher	.863	4
Consultant	.821	4
Organizer	.710	3
Educator	.644	4
Administrator	.558	3

*** = insufficient data

Lastly, in order to test the null hypothesis that "There is no relationship between roles in which change agents perceive being trained," Pearson correlations were determined. The correlations were done between the items regarding frequency of performing a role and the status of having received training for that role. These correlations are listed in Table 5.

Table 5

Pearson Correlations for the Null Hypothesis That There is No Relationship Between Roles in Which Change Agents Perceive Being Involved, and Those in Which They Perceive Being Trained, CIAT, 1986 (N=77).

Role	Pearson Correlation Coefficient	N	Probability
Consultant	-.3392	54	.006*
Educator	-.3364	49	.009*
Researcher	-.3076	56	.011*
Facilitator	-.2106	40	.096
Enabler	-.1923	50	.091
Broker	-.1777	55	.097
Advocate	-.1180	52	.202
Arbitrator	-.0301	56	.041*
Administrator	-.1697	47	.012*
Organizer	-.0819	52	.028*

* Significant at the .05 level

The Pearson Correlation Coefficients indicate that the null hypothesis can be rejected at the .05 level for the roles Consultant, Educator, Researcher, Arbitrator, Administrator, and Advocate, with the roles of Consultant and Educator being strongly significant.

CONCLUSIONS AND RECOMMENDATIONS FOR FURTHER RESEARCH

It was concluded that the null hypothesis was rejected for the roles of Consultant, Educator, Researcher, Administrator, and Organizer, and that a correlation does seem to exist between the training received and the frequency which these roles are performed. Interestingly, the sub-roles of the Facilitator role had lower correlations and reliability coefficients than when they were combined into Beal's Facilitator category. This might give some credence to Beal's idea of grouping them into an overall category. This is especially true because all of the sub-roles contribute to making it easier to assess the value of a change.

In terms of the research questions of this study, agricultural change agents did perceive that they performed certain roles on their jobs. They also perceived themselves performing some roles, e.g., consultant, enabler, and researcher, more frequently than the roles of arbitrator and advocate.

In the same context, more change agents felt that they received training for some roles more than they did for others. Except for the role of Researcher, the majority perceived that they had not been trained for their particular roles as change agents

An interesting possibility for further research emerges when looking at the frequency and correlations of the roles examined in this particular study, and matching them to another model of change agent roles as

postulated by Havelock (1970), a model which included the role of "Process Helper". It would appear that the Arbitrator, Enabler, Broker, Organizer, Administrator, and Advocate roles of Beal match the "Process Helper" role. If the latter role is examined and if the findings are consistant with these findings as reported, then an implication exists that the agricultural change agents in South and Central America examined are trained and perceive themselves performing active roles as investigators and problem solvers, but do not perceive being involved, nor being trained as "process helpers." If supported by additional research, one might go a step further and suggest that these are the roles that involve long term interaction with a client group.

Another possibility for further research emerges from the experience of the investigator in evaluating the responses received. In developing the questionnaire, and obtaining responses from the sample, it was observed that the questionnaire presented many dilemmas for the respondents. It appeared to cause them to think about aspects of their job in ways they previously hadn't done. Likewise, it caused them to think about the training they had received, and its relationship to their work. It seemed that they could easily identify with roles such as educator, researcher, and consultant, but other questions pertaining to roles such as broker, enabler, etc. seemed to give them trouble. Some of these ideas were perceived as being too abstract. This has possible implications for determining whether these roles are an important part of their job, and whether there should be training to develop better these skills.

Also, the overall effect of these findings supports the notion that change agents in the setting examined are not aware of some of the change agent, or "group process," aspects of their job and have not received training for them. Therefore, it is concluded that further investigation needs to be undertaken to examine persons trained for their change agent roles, and their job effectiveness, versus persons not receiving this specific training.

This would be consistent with the report of Schwass and Allo (1982) who suggest that "training of field staff is a leading factor, or pre-eminent factor among the many which determine the ultimate effectiveness of extension." (p. 2) This also builds on McKillop's (1982) findings and conclusion that individuals who had recently completed training courses spent more time in farmer contacts and farmer training, thus implying that those who do not possess these necessary skills simply avoid this contact. This only underscores the concern for adequate training of change agents, and certainly training in all the aspects of change agentry.

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